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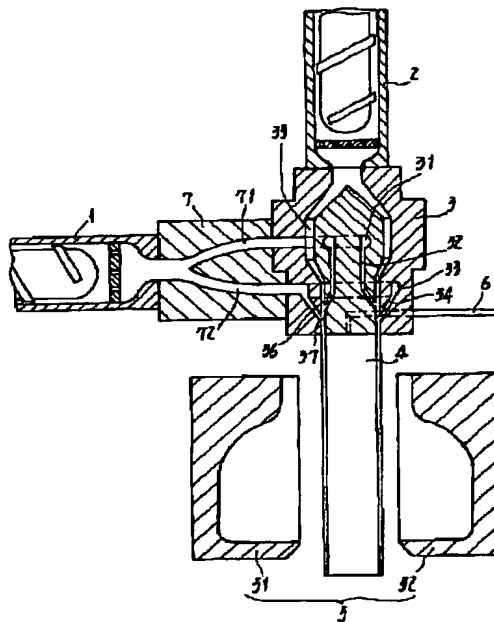
(54) CONTAINER MADE OF LAMINATED SYNTHETIC RESIN AND MANUFACTURE THEREOF

(57) Abstract:

PURPOSE: To obtain a container which is suitable for holding a commodity apt to deteriorate and storing it for long, by a method wherein a film of thermoplastic polyester resin or the like is positioned on both sides of a film constituted of olefin resin and a laminated film having three layers brought into close contact with each other is made tubular.

CONSTITUTION: A tubular film constituted of one resin selected from PET, EVOH and MX is positioned on both sides of a tubular PO film held between and a laminated tube formed of these films only brought into close contact with each other is extruded and used as parison. Molten resin PO prepared in an extruder enters an annular passage 35 inside a head 3. While the circular passage 35 is made concentric with annular passages 31 and 33, it is positioned in the middle of the annular passages 31 and 33 when viewed from the center thereof. The molten resin PO enters a passage 36 from the annular passage 35 and becomes a tubular film which is to form a central layer.

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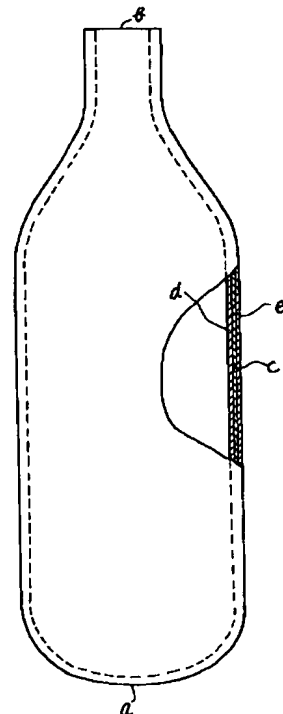
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(54)【発明の名称】 積層合成樹脂製容器及びその製造方法

(57)【要約】

【目的】 食品や化粧品のように変質し易い商品を変質させないで、永く貯蔵するに適した美麗な容器を提供することを目的とする。

【構成】 オレフィン系樹脂フィルムの両側に、熱可塑性ポリエステル樹脂、エチレン・ビニルアルコール共重合樹脂、又はMXナイロンからなるフィルムを位置させて、3層を密接させただけの積層フィルムからなるパリソンを作り、これを吹き込み成形して広底の容器とする。



【特許請求の範囲】

【請求項1】 オレフィン系樹脂からなるフィルム又はシートは、両側に熱可塑性ポリエステル樹脂、エチレン・ビニルアルコール共重合樹脂、又はMXナイロンからなるフィルム又はシートを位置させて、3層を密接させただけの積層フィルム又はシートからなる筒からなり、筒の一端を閉じて底とし、他端を開口させて口とし、口から底に向かって広がる形状に一体に膨らんでいることを特徴とする、積層合成樹脂製容器。

【請求項2】 熱可塑性ポリエステル樹脂、エチレン・ビニルアルコール共重合樹脂又はMXナイロンを1つの押出機内で熔融し、オレフィン系樹脂を別の押出機内で熔融し、熔融した2つの樹脂を1つの口金内に導いて、口金内で前者を2重の筒状フィルム又はシートに成形するとともに、後者をその中間位置で単一の筒状フィルム又はシートに成形し、口金内でこれらフィルム又はシートを合流させて積層フィルム又はシートからなるチューブを作り、口金から押し出してパリソンとし、パリソンを容器成形用の分割外型に挟んで一端を閉じ、他端からパリソン内に空気を吹き込み、中空成形して広底の容器にすることを特徴とする、積層合成樹脂製容器の製造方法。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 この発明は、積層合成樹脂製容器に関するものである。とくに、この発明は、食品や化粧品のように水分を吸収したり、空気に接触したりして変質しやすい商品を入れ、永く貯蔵するに適した容器を提供しようとするものである。

【0002】

【従来の技術】 積層合成樹脂製容器とは、合成樹脂製フィルム又はシートの積層体で作られた容器である。このような容器は既に公知である。この場合、容器を構成する積層体は、各層を構成している合成樹脂のフィルム又はシート（以下、これを合わせてフィルムという）が互いに接着されて一体とされたものであった。すなわち、各層を構成している合成樹脂が互いに融着する性質のものであるときは、互いに融着させることにより一体とされ、各層を構成している合成樹脂が互いに融着し合わない性質のものであるときは、その間に接着剤を介在させて一体とされて来た。云いかえると、各層が互いに融着し合わない合成樹脂を互いに密接させただけの状態とした積層体で容器を作ることにはなかった。それは、密接させただけの積層体で容器を作ったのでは、使用中に容器が剥離してしまうと考えられたからである。

【0003】 他方、合成樹脂製の容器を作る一つの方法として、吹き込み成形法が知られている。吹き込み成形法とは、塩のような容器を作るのに用いられる方法である。吹き込み成形法では、押出機から合成樹脂を筒状にして押し出してパリソンを作り、パリソンがまだ軟化し

ている間にパリソンを割り型の間に挟んでパリソンの先端を閉じ、他端からパリソン内に空気を吹き込んでパリソンを膨らませ、パリソンを外型の壁面に密接させて容器の形に成形し、冷却してから型を開いて容器を取り出す方法である。吹き込み成形法では、唯1層のみからなる容器の作られることが多かった。

【0004】 吹き込み成形法によって積層容器を作ることとも提案された。その提案は、一つの口金から複数のパリソンを重ね合った状態で別々に押し出し、割り型内でパリソンを膨らませると同時に積層する、と云う方法である。しかし、パリソンを幾重にも重なった状態で作るとは煩瑣であり、またパリソンを膨らませると同時に積層することは困難であり、従ってこの方法によって積層容器を作るとは容易でなかった。

【0005】 この点を改良したものとして特開昭56-167442号公報の提案がある。この提案は、可動マンドレルと補助押出機とを備えた1台の射出成形機を使用することとしている。そして、まず金型内に1つの樹脂を射出して外層となるべき樹脂でパリソンを作り、パリソンを外側から冷却してパリソンの内部がまだ軟化している状態のときに、その中へ別の樹脂を射出して外層／中心層／外層からなる多層パリソンを作り、次いでパリソンを加熱して吹き込み成形して、積層容器を作ると云うのである。

【0006】 しかし、外層を構成するパリソンの内部がまだ軟化している状態をうまく出現させることが困難である上に、この中へ別の樹脂を射出して別の樹脂を全体にわたって一様の厚みに作るとは容易でない。またそのように作動する射出成形機を作るとも容易でない。その上に、金型内で作った多層パリソンを再び加熱しなければならないことは、熱の不経済であり、非能率である。

【0007】 また、上記の特開昭56-167442号公報は、色々な樹脂を組み合わせ使用することができるよう記載しているが、そこで使用できる樹脂の組み合わせは一応互いに融着し合うものに限定されているようである。事実、外層に熱可塑性ポリエステル樹脂を配置し、中心層にポリオレフィンを配置させたような3層のパリソンを作るとは示されていない。

【0008】 他方、押し出しによって積層フィルムを作るのに、共押し出しの方法が知られている。共押し出しとは、異なった樹脂を別々の押出機内で熔融したのち、これを一つの口金内に導いて、初めは各樹脂を別々にフィルム状に成形し、次いで同じ口金内でそれらのフィルムを合流させて積層フィルムとする方法である。この方法は互いに融着し合う樹脂に対して用いられて来た。樹脂が互いに融着し合わない場合には、その間に接着剤を介在させる必要があった。

【0009】

【発明が解決しようとする課題】 この発明者は、食品や

化粧品のように変質しやすい商品を入れるに適した容器を提供するには、まず水分遮断度の大きい樹脂と酸素遮断度の大きい樹脂とを積層して用いる必要があると考えた。そして、水分遮断度の大きい樹脂としてポリオレフィン（以下、これをPOという）を使用することとし、また酸素遮断度の大きい樹脂として熱可塑性ポリエステル樹脂（以下、これをPETという）と、エチレン・ビニルアルコール共重合樹脂（以下、これをEVOHという）と、MXナイロン（以下、これをMXという）とを使用するのが適当であると考えた。ところが、POはPET、EVOH、MX（以下、この三者を総称してPEMという）と互いに融着させることができない。すなわち、これらを互いに融着させようとしても剥がれてしまう。従って、POをPEMと貼り合わせて積層体とするには接着剤を介在させる必要がある。

【0010】また、POとPEMとを積層する場合に、POを表面に露出しておく、この積層体で作った容器はPOに特有の異臭を放つものとなることが判明し、この異臭が食品や化粧品を入れるに適しないものとなることがわかった。そこで、この発明者はPOを中心層とし、外層としてPEMを位置させることを試み、これによって異臭の欠点が改良できることを見出した。

【0011】さらにこの発明者は、この積層樹脂の容器を吹き込み成形によって作ろうと考えた。吹き込み成形によって容器を作るのに、POを中心層としその両側にPEMを位置させて、3層からなるパリソンを作ろうとすると、その間に接着剤を介在させるとなると、パリソンは接着剤も含めて5層で作ることが必要となる。ところが、5層のパリソンを成形することは容易でない。そこで、これをさらに簡単にする必要があった。

【0012】

【課題解決のための手段】この発明者は、POを中心層とし、その両側にPEMすなわちPET、EVOH又はMXを位置させて、3層のフィルムからなる積層パリソンを作るのに、それらの樹脂は互いに融着し合わないものであるが、これを共押し出しによって一つの口金内で積層して積層フィルムとして押し出すのが好都合であることを見出した。また、こうして作った積層パリソンを従来の吹き込み成形法で広底の容器とすると、パリソンを構成している樹脂同志が互いに融着し合わないものであるに拘わらず、広底の形状のために容器は各樹脂層に簡単に剥離しないようになることを見出した。従って、この積層容器は各層の間に接着剤層を介在させなくても、一体の容器として充分に使用できるという利点を持つことになる。この発明は、このような知見に基づいて完成されたものである。

【0013】この発明は、一面において容器を提供するものであり、他面において容器の製造方法を提供するものである。その容器は、オレフィン系樹脂からなるフィルムの両側にPEMのうちの1つからなるフィルムを位

置させて3層を密接させただけの積層フィルムからなる筒からなり、筒の一端を閉じて底とし他端を開口させて口とし、口から底に向かって広がる形状に一体に膨らんでいることを特徴とする、積層合成樹脂製容器である。

【0014】また、容器の製造方法は、共押し出しによりPEMのうちの1つの樹脂を1つの押出機内で熔融し、POを別の押出機内で熔融し、熔融した2つの樹脂を1つの口金内へ導いて、口金内で前者を2重の筒状フィルムに成形するとともに、後者をその中間位置で単一の筒状フィルムに成形し、口金内でこれらのフィルムを合流させて筒状の積層フィルムを形成し、口金から押し出してパリソンとし、パリソンを容器成形用の分割外型に挟んで一端を閉じ、他端からパリソン内に空気を吹き込み、中空成形して奥底の容器とすることを特徴とするものである。

【0015】

【実施例】この発明に係る容器を実施の一例について、図面に基づき説明すると次のとおりである。図1は、この発明に係る積層合成樹脂製容器の一部切欠側面図である。図2は、この発明に係る積層合成樹脂製容器の製造方法を示した模型図である。

【0016】

【容器の説明】図1に示した容器は、合成樹脂から成る筒の一端を閉じて底aとし、他端を開口させて口bとし、口bから底aに向かって広がる形状に一体に膨らんだ形状を呈している。またその筒は、熱可塑性合成樹脂のフィルムを積層させて得られた積層フィルムで構成されている。これらの点ではこの容器はありふれたものである。

【0017】この発明の最も特徴とするところは、積層フィルムの構成である。すなわち、その積層フィルムは、POからなるフィルムcを中心層とし、その両側にPEM、すなわちPET、EVOH又はMXからなるフィルムd、eを位置させているという組み合わせである。POとPET、EVOH又はMXとは、互いに融着し合わない樹脂であるから、それが直接接触しただけでは接着せず、従ってこの積層フィルムは本来バラバラに分解すべきものが、口bから底aに向かって広がる形状に膨らんでいるために、互いに係止されて分解を免れ一体になっている。

【0018】この発明で用いるPOとしては、ポリエチレン、ポリプロピレンの何れをも用いることができる。そのうち、ポリエチレンは低密度及び高密度ポリエチレンの何れをも用いることができる。

【0019】PETは、芳香族のジカルボン酸に2価のアルコールを反応させて得られた高分子量の鎖状ポリエステルである。ジカルボン酸としてはテレフタル酸が最も多く用いられているが、イソフタル酸を用いたものもある。また2価アルコールとしてはエチレングリコールが主として用いられるがトリメチレングリコール、

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ジエチレングリコール等を用いたものもある。このようなポリエステルは市販されているので、この発明では市販されている樹脂を用いる。

【0020】EVOHは、エチレンとビニルアルコールとの共重合樹脂である。この共重合樹脂は、エチレンと酢酸ビニルとを共重合させてまずエチレン・酢酸ビニル共重合体を作り、次いでこの共重合体中の酢酸ビニルを加水分解して作られる。その共重合割合には色々なものがあるが、この発明ではビニルアルコール含量が20～50モル%のものを用いるのが好ましい。

【0021】MXはメタキシリレンジアミンと二塩基酸とを縮合させて得られた鎖状高分子物であって、ナイロンの一種である。二塩基酸としてはアジピン酸が多く用いられている。MXは市販されているので、この発明では市販されている樹脂を用いることができる。

【0022】

【容器の発明の効果】この発明に係る容器は、上述のように構成されているから、次のような利点をもたらしている。すなわち積層フィルムは、POが中心層となっているので、100～120℃程度の温度に十分に耐える容器となる。また、その積層フィルムは、外側にPET、EVOH又はMXのフィルムが位置しているから、無味無臭で食品に接触してもよいものとなり、しかもPOに特有な臭気の発散を防いでおり、従って食品、化粧品などの容器として好適なものとなっている。さらにPOは水分の遮断度が大きくPET、EVOH又はMXは酸素遮断度が大きいので、積層フィルムは全体として酸素と水分の遮断度の大きいものとなり、従ってこの容器は食品や化粧品を貯蔵するのに好適なものとなっている。その上に、口から底に向かって広がっているから、容器の胴部は延伸されたものとなり、従って強度の大きいものとなっている。さらに、POとPEMすなわちPET、EVOH又はMXとは互いに密接しているだけであるから、接着剤が介在していないだけ透明度がよく、美麗なものとなっている。このように、この発明の容器は色々な利点を持っている。

【0023】

【製造方法の説明】次に、図2に基づいてこの発明に係る容器の製造方法を説明する。図2では、押出機1内でPEM、すなわちPET、EVOH又はMXを熔融し、押出機2内でPOを熔融し、熔融した樹脂を口金3内に導いている。口金3内では、これらの樹脂を何れも筒状フィルムに成形するとともに、POからなるフィルムを中心層とし、その両側にPEMからなるフィルムを位置させ、これらのフィルムを口金内で合流させて積層フィルムからなるチューブを作っている。このチューブを口金から押し出してパリソン4とする。その後は、従来法に従ってパリソン4を外型の半分51と52とで挟んで一端を閉じ、パリソン内にパイプ6から空気を吹き込んで中空成形し、パリソンを底広の容器に成形する。その

後容器の口を切断し、容器を冷却し、外型を開いて容器を取り出す。

【0024】図2に示した容器の製造方法は、筒状のPOフィルムを中に挟んで、その両側にPET、EVOH又はMXの中から選ばれた1つの樹脂からなる筒状フィルムを位置させ、それらのフィルムが密接しただけの積層チューブを押し出し成形して、これをパリソンとして使用する点に特徴を持っている。さらに説明すれば、POとPET、EVOH又はMXとは互いに融着し合わないから、このような樹脂は間に接着剤を介在させなければ一体とすることができないので、接着剤なしでは共押し出しをしないのが常識であった。ところが、この発明方法では、接着剤を介在させないで共押し出しを行うこととした点に特徴がある。それは、この発明方法では、接着剤を介在させなくても、得られたパリソンを直ちに吹き込み成形して、底広の容器に成形するために、積層パリソンが剥離してバラバラになることが防がれるので、できることとなったのである。

【0025】図2では、共押し出しにより口金3内で積層フィルムからなるチューブを作るが、その機構は次のとおりである。押出機1で作られた熔融PEMは、分流装置内で2つに分かれ、1つは流路71を通過して口金3内へ入り、口金3の中で一番内側に位置する環状通路31へ入り、次いで通路32を通過して内側層を形成する筒状フィルムとなる。他方、2つに分かれた他の1つは、流路72を通過して口金3内へ入り、口金3の中で一番外側に位置する環状通路33へ入り、次いで通路34を通過して外側層を形成する筒状フィルムとなる。環状通路31と33とは同心とされている。

【0026】他方、押出機2で作られた熔融樹脂POは、口金3内で環状通路35へ入るが、環状通路35は、上述の環状通路31と33と同心とされているが、その中心から見ると環状通路31と33との中間に位置している。熔融樹脂POは環状通路35から通路36へ入って中心層を形成する筒状フィルムとなる。

【0027】こうして三重に形成された筒状フィルムは、口金3内の通路37で合流して積層フィルムからなるチューブを形成する。このチューブが口金3から押し出されてパリソン4となる。パリソン4は、その後は従来法通りの吹き込み成形に付される。

【0028】

【発明の効果】この発明では、PET、EVOH又はMXを1つの押出機内で熔融し、POを別の押出機内で熔融し、熔融した2つの樹脂を1つの口金内に導いて、口金内で前者を二重の筒状フィルムに成形するとともに、後者をその中間位置で単一の筒状フィルムに成形し、口金内でこれらのフィルムを合流させて積層フィルムからなるチューブを作るので、POフィルムの両側にPET、EVOH又はMXからなるフィルムが位置した3層の積層チューブを容易に作ることができる。この積層チ

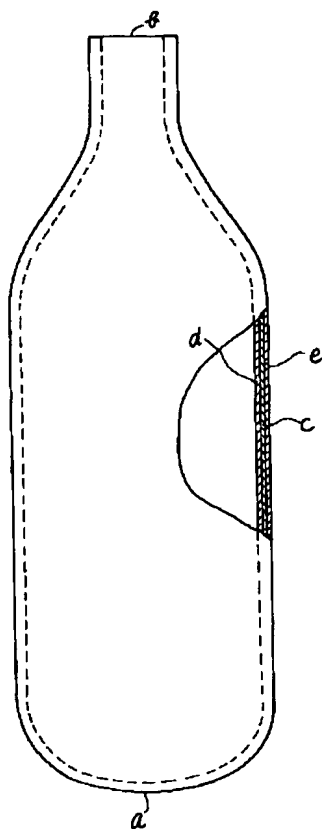
7

ューブを口金から押し出してパリソンとするので、このパリソンを容器成形用の分割外型に挟んで一端を閉じ、他端からパリソン内に空気を吹き込み中空成形することにより、容易に積層合成樹脂製容器を作ることができる。この容器では、これを構成するPOとPET、EV OH又はMXが互いに融着し合わない性質のものであるから、本来は各樹脂の層がバラバラに離れて容器を構成しないものであるが、吹き込み成形により広底の容器としたので、各層がバラバラにならないで強固に一体となっている。さらに、この容器は、前述のように、水分と酸素の遮断性が大きく、しかも無毒で無臭のものとなっているから、食品及び化粧品など変質し易いものを入れる容器として価値のあるものとなっている。また、各樹脂の層は互いに気密に接触しており、その間に接着剤を介在させていないから、透明性も良好である。しかも、このような容器は、この発明方法でしか作り得ないところに、この発明の価値がある。

【図面の簡単な説明】

*

【図1】



8

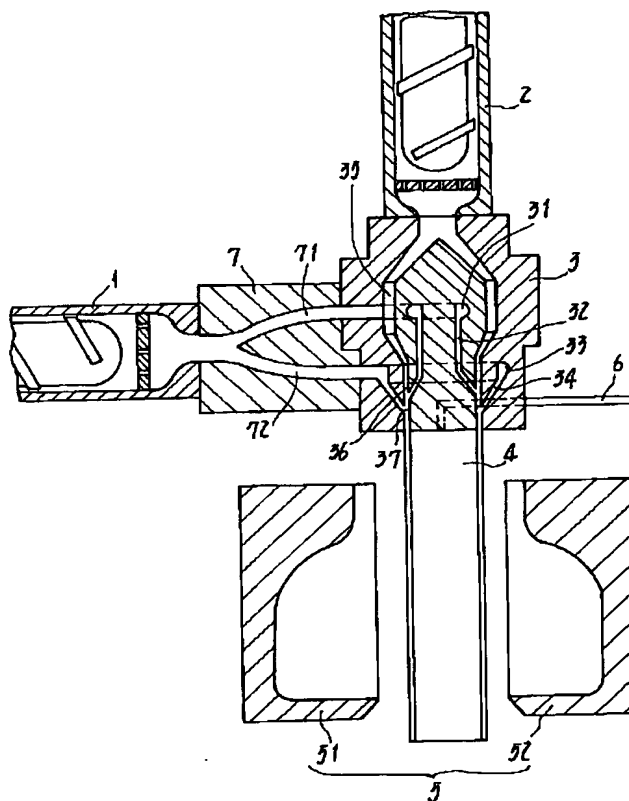
* 【図1】 この発明に係る積層合成樹脂製容器の一部切欠側面図である。

【図2】 この発明に係る積層合成樹脂製容器の製造方法の一例を説明する模型図である。

【符号の説明】

- a 容器の底
- b 容器の口
- c オレフィン系樹脂からなるフィルム
- d 熱可塑性ポリエステル樹脂、エチレン・ビニルアルコール共重合樹脂、又はMXナイロンからなるフィルム
- e 熱可塑性ポリエステル樹脂、エチレン・ビニルアルコール共重合樹脂、又はMXナイロンからなるフィルム
- 1 押出機
- 2 押出機
- 3 口金
- 4 パリソン
- 5 外型

【図2】



フロントページの続き

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(54) **MOISTUREPROOF MULTILAYERED EXTRUSION
STRUCTURE AND MOISTUREPROOF
MULTILAYERED CONTAINER USING THE SAME**

(57) Abstract:

PURPOSE: To provide a multilayered extrusion structure and a multilayered container excellent in impact resistance, having moistureproof properties more excellent than those of a conventional structure composed of a polyolefin resin such as polypropylene and

excellent in moistureproof oxygen barrier properties.

CONSTITUTION: A moistureproof multilayered extrusion structure has fundamental resin constitution of at least three layers wherein a polyolefin resin layer containing 5-60mol% of a cyclic olefin component is interposed between polyolefinic resin layers and is excellent in impact resistance. This structure is molded to produce a moistureproof multilayered container.

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5 CLAIMS

[Claim]

10 [Claim 1] The container made from laminating synthetic resin which the film or the sheet which becomes the both sides of the film which consists of an olefin system resin, or a sheet from thermoplastic polyester resin, an ethylene vinyl-alcohol copolymerization resin, or MX nylon is located, and consists of a cylinder which consists of the laminated film or the sheet to which three layers were made close, closes the end of a cylinder, considers as the base, make carry out opening of the other end, considers as the opening, and be characterized by to have swollen in the configuration

15 [Claim 2] Melting of thermoplastic polyester resin, an ethylene vinyl alcohol copolymerization resin, or the MX nylon is carried out within one extruder. Carry out melting of the olefin system resin within another extruder, and while two resins which carried out melting are led to one opening Kaneuchi and the former is fabricated by opening Kaneuchi on a double tubed film or a double sheet The tube which fabricate the
20 latter on a single tubed film or a single sheet in the mid-position, and these films or a sheet is made to join by opening Kaneuchi, and consists of a laminated film or a sheet is made. The manufacture technique of the container made from laminating synthetic resin characterized by extruding from a mouthpiece, considering as a parison, closing an end on both sides of a parison to the split dies body for container molding, blowing and
25 carrying out the blow molding of the air into a parison from the other end, and making it the container of the extensive base.

30 TECHNICAL PROBLEM

[Object of the Invention] This artificer thought that it was necessary to carry out the laminating of the resin with the large degree of moisture cutoff, and the resin with the large degree of oxygen cutoff, and to use them first, in order to have offered the container suitable for putting in the goods which are easy to deteriorate like food or cosmetics. And
35 it thought it appropriate to suppose that a polyolefine (this is hereafter called PO) is used as a resin with the large degree of moisture cutoff, and to use thermoplastic polyester resin (for this to be hereafter called PET), an ethylene vinyl alcohol copolymerization resin (for this to be hereafter called EVOH), and MX nylon (for this to be hereafter called MX) as a resin with the large degree of oxygen cutoff. However, PO cannot be made to
40 weld to PET, EVOH, and MX (henceforth [these three persons are named generically and] PEM) mutually. That is, even if you are going to make it weld these mutually, it will separate. Therefore, it is necessary to make adhesives placed between sticking PO with PEM and considering as a layered product.

45 [0010] Moreover, when the laminating of PO and the PEM was carried out and PO was exposed to the front face, becoming what releases an off-flavor peculiar to PO made clear

the container made from this layered product, and it turns out that this off-flavor becomes the thing unsuitable for putting in food and cosmetics. Then, this artificer used PO as the main layer, and it tried to locate PEM as an outer layer, and found out that the fault of an off-flavor was improvable with this.

5 [0011] Furthermore, this artificer blew the container of this laminating resin, and thought that it would make by molding. When it is going to make the parison which PO is used as a main layer, and PEM is located in the both sides, and becomes making a container from three layers by entrainment molding and adhesives are made to intervene between them, it is necessary to make a parison from five layers also including adhesives. However, it is
10 not easy to fabricate the parison of five layers. Then, this needed to be simplified further.

DETAILED DESCRIPTION

15 [Detailed description]
[0001]

[Field of the Invention] This invention relates to the container made from laminating synthetic resin. Especially this invention tends to offer the container suitable for putting in the goods which absorb moisture like food or cosmetics, or contact air, and are easy to
20 deteriorate, and storing long.

[0002]
[Prior art] The container made from laminating synthetic resin is a container made from the layered product of the film made from synthetic resin, or a sheet. Such a container is already well-known. In this case, the film or sheet (henceforth [this is doubled and] a
25 film) of synthetic resin which constitutes each class pastes up mutually, and the layered product which constitutes a container was made into one. That is, when the synthetic resin which is made into one by making it weld mutually when the synthetic resin which constitutes each class is the thing of the property welded mutually, and constitutes each class is the thing of the property which is not welded mutually, adhesives were made to
30 intervene between them and it has considered as one. Each class did not make a container from the layered product made only into the status to which the synthetic resin which is not welded mutually was mutually made close with a **** frog. It is because it was thought that a container will exfoliate while in use in having made the container only from the layered product made close.

35 [0003] On the other hand, the entrainment fabricating method is learned as the one technique of making the container made from synthetic resin. The entrainment fabricating method is technique used for making a container like **. It is the technique of opening a mold, after a parison is broken while making an extruder to synthetic resin tubed by the entrainment fabricating method, extruding, making a parison and the parison's having still
40 softened, and insert between molds, close the nose of cam of a parison, blow air into the parison from the other end, swelling a parison, making a parison close to the wall surface of a dies body, fabricating in the type of a container and cooling, and taking out a container. The container which consists only of one layer of **s was made from the entrainment fabricating method in many cases.

45 [0004] Making a laminated vessel by the entrainment fabricating method was also proposed. The proposal is it the **** technique to carry out a laminating at the same time

it extrudes two or more parisons separately in the status that it overlapped, from one mouthpiece and it swells a parison within a rate type. However, it was **** to make a parison from the status that it lapped several times over, and while swelling the parison, it was difficult [it] to carry out a laminating, therefore it was not easy to make a laminated vessel by this technique.

[0005] There is a proposal of a Provisional-Publication-No. 167442 [56 to] official report as what improved this point. This proposal is deciding that one set of the injection molding machine equipped with the movable mandrel and the supplementary extruder is used. and -- first -- metal mold -- when it is in the status which makes a parison from the resin which should inject one resin inside and should serve as an outer layer inside, cools a parison from an outside, and the interior of a parison has still softened, it is ****, when the multilayer parison which injects another resin and consists of an outer layer / a main layer / an outer layer into it is made, a parison is subsequently heated, blown and fabricated and a laminated vessel is made

[0006] However, it is not easy for making the status that the interior of the parison which constitutes an outer layer has still softened appear well to inject another resin into this to a difficult top, and it to make another resin in uniform thickness over the whole in it. Moreover, it is not easy to make the injection molding machine which operates such, either. moreover -- metal mold -- the heat of the multilayer parison made inside being heated again is uneconomical, and it is a non-efficiency

[0007] It seems that moreover, the combination of the resin which can be used there is restricted to that which is welded mutually once although it has indicated that the above-mentioned Provisional-Publication-No. 167442 [56 to] official report can be used combining various resins. In fact, making a parison of three layers which thermoplastic polyester resin has been arranged [parison] to the outer layer, and arranged the polyolefine in the main layer is not shown.

[0008] On the other hand, the technique of ***** is learned although a laminated film is made by the knockout. ***** is the technique of leading this to one opening Kaneuchi, fabricating each resin in the shape of a film separately in the beginning, making those films join by the opening Kaneuchi same subsequently, and making it into a laminated film, after carrying out melting of the different resin within a separate extruder. This technique has been used to the resin to weld [each other's]. When a resin did not weld each other, adhesives needed to be made to intervene between them.

[0009]

[Object of the Invention] This artificer thought that it was necessary to carry out the laminating of the resin with the large degree of moisture cutoff, and the resin with the large degree of oxygen cutoff, and to use them first, in order to have offered the container suitable for putting in the goods which are easy to deteriorate like food or cosmetics. And it thought it appropriate to suppose that a polyolefine (this is hereafter called PO) is used as a resin with the large degree of moisture cutoff, and to use thermoplastic polyester resin (for this to be hereafter called PET), an ethylene vinyl alcohol copolymerization resin (for this to be hereafter called EVOH), and MX nylon (for this to be hereafter called MX) as a resin with the large degree of oxygen cutoff. However, PO cannot be made to weld to PET, EVOH, and MX (henceforth [these three persons are named generically and] PEM) mutually. That is, even if you are going to make it weld these mutually, it will separate. Therefore, it is necessary to make adhesives placed between sticking PO

with PEM and considering as a layered product.

[0010] Moreover, when the laminating of PO and the PEM was carried out and PO was exposed to the front face, becoming what releases an off-flavor peculiar to PO made clear the container made from this layered product, and it turns out that this off-flavor becomes the thing unsuitable for putting in food and cosmetics. Then, this artificer used PO as the main layer, and it tried to locate PEM as an outer layer, and found out that the fault of an off-flavor was improvable with this.

[0011] Furthermore, this artificer blew the container of this laminating resin, and thought that it would make by molding. When it is going to make the parison which PO is used as a main layer, and PEM is located in the both sides, and becomes making a container from three layers by entrainment molding and adhesives are made to intervene between them, it is necessary to make a parison from five layers also including adhesives. However, it is not easy to fabricate the parison of five layers. Then, this needed to be simplified further.

[0012]

[The means for a technical-problem resolution] This artificer used PO as the main layer, located PEM, i.e., PET and EVOH, or MX in the both sides, and it found out that it was convenient to carry out the laminating of this by one opening Kaneuchi by *****, and to extrude it as a laminated film although it does not weld those resins of not each other's although the laminating parison which consists of a film of three layers is made.

Moreover, although the resin comrade who constitutes the parison did not weld each other when the laminating parison made in this way was used as the container of the extensive base by the conventional entrainment fabricating method, it found out that a container ceases to exfoliate in each resin layer simply for the configuration of the extensive base. Therefore, even if this laminated vessel does not make an adhesives layer intervene between each class, it will have the advantage that it can fully be used as a container of one. This invention is completed based on such knowledge.

[0013] this invention offers a container in the whole surface, on the other hand, it is boiled, is set, and offers the manufacture technique of a container The container is a container made from laminating synthetic resin which consists of a cylinder which the film which becomes the both sides of the film which consists of an olefin system resin from one of PEM is located, and consists only of a laminated film to which three layers were made close, closes the end of a cylinder, considers as the base, is made to carry out opening of the other end, considers as the opening, and be characterized by having swollen in the configuration which spreads toward the base from the opening at one.

[0014] Moreover, the manufacture technique of a container carries out melting of the one resin in PEM within one extruder by *****. Carry out melting of the PO within another extruder, and while two resins which carried out melting are led to one opening Kaneuchi and the former is fabricated by opening Kaneuchi on a double tubed film Fabricate the latter on a single tubed film in the mid-position, make these films join by opening Kaneuchi, and a tubed laminated film is formed. It is characterized by extruding from a mouthpiece, considering as a parison, closing an end on both sides of a parison to the split dies body for container molding, blowing and carrying out the blow molding of the air into a parison from the other end, and considering as the container of ****.

[0015]

[Example] It is as follows when an example of enforcement of the container concerning this invention is explained based on a drawing. a part of container made from laminating

synthetic resin which drawing 1 requires for this invention -- it is a notching side elevation Drawing 2 is the model view having shown the manufacture technique of the container made from laminating synthetic resin concerning this invention.

[0016]

- 5 [An explanation of a container] The container shown in drawing 1 closes the end of the cylinder which consists of synthetic resin, sets it to base a, carries out opening of the other end, is set to opening b, and is presenting the configuration which swelled to one to the configuration which spreads toward base a from opening b. Moreover, the cylinder consists of a laminated film which is made to carry out the laminating of the film of thermoplastic synthetic resin, and was obtained. At these points, this container is
10 common.

- [0017] The place of this invention by which it is characterized most is the configuration of a laminated film. That is, the laminated film is the combination of locating the films d and e which use as a main layer film c which consists of PO, and become the both sides from PEM, i.e., PET and EVOH, or MX. Since PO, PET, EVOH, or MX is a resin not to weld [not each other's], since what should originally be decomposed into a rose rose has swollen in the configuration which spreads toward base a from opening b, it does not
15 paste up only by it contacting directly, therefore this laminated film is ****ed mutually, escapes decomposition and is united.

- 20 [0018] What ** of polyethylene and polypropylene can also be used as PO used by this invention. Among those, polyethylene can also use a low density and what ** of a high density polyethylene.

- [0019] PET is chain-like polyester of the amount of macromolecules which the alcohol of 2 **s is made to react to an aromatic dicarboxylic acid, and was obtained. Although most
25 terephthalic acid is used as a dicarboxylic acid, there is also a thing using isophthalic acid. Moreover, although ethylene glycol is mainly used as dihydric alcohol, there is also a thing using the trimethylene glycol, the diethylene glycol, etc. Since such polyester is marketed, it uses the resin marketed in this invention.

- [0020] EVOH is the copolymerization resin of ethylene and vinyl alcohol. This
30 copolymerization resin carries out copolymerization of ethylene and the vinyl acetate, makes ethylene and a vinyl acetate copolymer first, subsequently hydrolyzes the vinyl acetate in this copolymer, and is made. Although various things are in the copolymerization rate, it is desirable that a vinyl alcohol content uses 20-50 mol the thing it is [thing] % in this invention.

- 35 [0021] MX is the chain macromolecule object which a meta-xylylene diamine and a dibasic acid are made to condense, and was obtained, and is a kind of nylon. Many adipic acids are used as a dibasic acid. Since MX is marketed, it can use the resin marketed in this invention.

[0022]

- 40 [The effect of the invention of a container] Since the container concerning this invention is constituted as mentioned above, it has brought the following advantages. That is, since PO serves as the main layer, a laminated film serves as the container which fully bears the temperature of about 100 - 120 degrees C. Moreover, since the film of PET, EVOH, or MX is located outside, the laminated film becomes what may contact food by tasteless
45 no odor, and moreover has prevented vapor of an odor peculiar to PO, therefore is suitable as containers, such as food and cosmetics. Since PET, EVOH, or MX has the

large degree of oxygen cutoff, a laminated film becomes oxygen and what has the large degree of cutoff of moisture collectively, therefore this container has become [the degree of cutoff of moisture] still large [PO] the suitable thing to store food and cosmetics. Since it has moreover spread toward the base from the opening, the drum section of a container becomes what was extended, therefore has become what has a large intensity. furthermore -- PO, PEM, i.e., PET and EVOH, or MX is only mutually close -- since -- transparency is good and is beautiful as adhesives do not intervene Thus, the container of this invention has various advantages.

[0023]

[An explanation of the manufacture technique] Next, the manufacture technique of the container applied to this invention based on drawing 2 is explained. In drawing 2 , the resin which carried out melting of PEM, i.e., PET and EVOH, or the MX within the extruder 1, carried out melting of the PO and carried out melting within the extruder 2 is led in the mouthpiece 3. Within the mouthpiece 3, while what ** also fabricates these resins on a tubed film, the film which consists of PO is used as a main layer, the film which becomes the both sides from PEM is located, and the tube which these films are made to join by opening Kaneuchi, and consists of a laminated film is made. This tube is extruded from a mouthpiece and it considers as a parison 4. After that, according to a conventional method, an end is closed on both sides of a parison 4 in the halves 51 and 52 of a dies body, the blow molding of the air is blown and carried out from a pipe 6 into a parison, and a parison is fabricated in the container of ****. The opening of a container is cut after that, a container is cooled, a dies body is opened, and a container is taken out.

[0024] The manufacture technique of the container shown in drawing 2 inserts tubed PO film into inside, locates the tubed film which consists of one resin chosen as the both sides from PET, EVOH, or MX, carries out extrusion molding of the laminating tube with which those films were close, and has the characteristic feature in the point which uses this as a parison. When explaining furthermore, since PO, PET, EVOH, or MX was not welded mutually, since it cannot be made into one if such a resin does not make adhesives intervene in between, if he had no adhesives, a common sense did not carry out *****. However, by this invention technique, the characteristic feature is that it presupposed that ***** is performed without making adhesives intervene. Since it prevents a laminating parison's exfoliating and becoming a rose rose in order to blow immediately the parison obtained even if it did not make adhesives intervene, to fabricate it and to fabricate by this invention technique in the container of ****, it will be made.

[0025] The device is as follows although the tube which consists of a laminated film within a mouthpiece 3 by ***** is made from drawing 2 . Melting PEM made with the extruder 1 is divided into two within part style equipment, and one enters into a mouthpiece 3 through passage 71, it goes into the annular path 31 most located inside in a mouthpiece 3, and becomes the tubed film which subsequently forms an inside layer through a path 32. On the other hand, other one divided into two enters into a mouthpiece 3 through passage 72, it goes into the annular path 33 most located outside in a mouthpiece 3, and becomes the tubed film which subsequently forms an outside layer through a path 34. Let the annular paths 31 and 33 be these cores.

[0026] On the other hand, although it goes into the annular path 35 within a mouthpiece 3 and the annular path 35 is used as the above-mentioned annular paths 31 and 33 and this above-mentioned core, if the melting resin PO made with the extruder 2 is seen from the

center, it is located in the interval with the annular paths 31 and 33. The melting resin PO serves as the tubed film which goes into a path 36 from the annular path 35, and forms a main layer.

5 [0027] In this way, the tubed film formed in Mie forms the tube which joins at the path 37 in a mouthpiece 3, and consists of a laminated film. This tube is extruded from a mouthpiece 3 and serves as a parison 4. A parison 4 is given to the entrainment molding as a conventional method after that.

[0028]

10 [Effect of the invention] While two resins which carried out melting of PET, EVOH, or the MX within one extruder, carried out melting of the PO and carried out melting within another extruder are led to one opening Kaneuchi and the former is fabricated in this invention on a double tubed film by opening Kaneuchi Since the tube which fabricate the latter on a single tubed film in the mid-position, and these films are made to join by opening Kaneuchi, and consists of a laminated film is made, the laminating tube of three
15 layers with which the film which becomes the both sides of PO film from PET, EVOH, or MX was located can be made easily. Since this laminating tube is extruded from a mouthpiece and it considers as a parison, on both sides of this parison, an end can be closed to the split dies body for container molding, and the container made from laminating synthetic resin can be easily made by blowing and carrying out the blow
20 molding of the air into a parison from the other end. It is firmly united without each class's becoming a rose rose since it considered as the container of the extensive base by entrainment molding, although the layer of each resin separates to a rose rose and originally does not constitute a container from this container, since PO, PET and EVOH which constitute this, or MX is the thing of the property which is not welded mutually.
25 Furthermore, since the cutoff nature of moisture and oxygen is large and has moreover become the nonpoisonous odorless thing as mentioned above, this container is worthy as a container into which food and the things which are easy to deteriorate, such as cosmetics etc., are put. Moreover, since the layer of each resin touches airtightly mutually and adhesives are not made to intervene between them, transparency is also good. And
30 such a container has the value of this invention in the place which can be made only by this invention technique.

EFFECT OF THE INVENTION

35 [The effect of the invention of a container] Since the container concerning this invention is constituted as mentioned above, it has brought the following advantages. That is, since PO serves as the main layer, a laminated film serves as the container which fully bears the temperature of about 100 - 120 degrees C. Moreover, since the film of PET, EVOH, or MX is located outside, the laminated film becomes what may contact food by tasteless
40 no odor, and moreover has prevented vapor of an odor peculiar to PO, therefore is suitable as containers, such as food and cosmetics. Since PET, EVOH, or MX has the large degree of oxygen cutoff, a laminated film becomes oxygen and what has the large degree of cutoff of moisture collectively, therefore this container has become [the degree of cutoff of moisture] still large [PO] the suitable thing to store food and cosmetics.
45 Since it has moreover spread toward the base from the opening, the drum section of a container becomes what was extended, therefore has become what has a large intensity.

furthermore -- PO, PEM, i.e., PET and EVOH, or MX is only mutually close -- since -- transparency is good and is beautiful as adhesives do not intervene Thus, the container of this invention has various advantages.

[0023]

- 5 [An explanation of the manufacture technique] Next, the manufacture technique of the container applied to this invention based on drawing 2 is explained. In drawing 2, the resin which carried out melting of PEM, i.e., PET and EVOH, or the MX within the extruder 1, carried out melting of the PO and carried out melting within the extruder 2 is led in the mouthpiece 3. Within the mouthpiece 3, while what ** also fabricates these
- 10 resins on a tubed film, the film which consists of PO is used as a main layer, the film which becomes the both sides from PEM is located, and the tube which these films are made to join by opening Kaneuchi, and consists of a laminated film is made. This tube is extruded from a mouthpiece and it considers as a parison 4. After that, according to a conventional method, an end is closed on both sides of a parison 4 in the halves 51 and
- 15 52 of a dies body, the blow molding of the air is blown and carried out from a pipe 6 into a parison, and a parison is fabricated in the container of ****. The opening of a container is cut after that, a container is cooled, a dies body is opened, and a container is taken out. [0024] The manufacture technique of the container shown in drawing 2 inserts tubed PO film into inside, locates the tubed film which consists of one resin chosen as the both
- 20 sides from PET, EVOH, or MX, carries out extrusion molding of the laminating tube with which those films were close, and has the characteristic feature in the point which uses this as a parison. When explaining furthermore, since PO, PET, EVOH, or MX was not welded mutually, since it cannot be made into one if such a resin does not make adhesives intervene in between, if he had no adhesives, a common sense did not carry out
- 25 *****. However, by this invention technique, the characteristic feature is that it presupposed that ***** is performed without making adhesives intervene. Since it prevents a laminating parison's exfoliating and becoming a rose rose in order to blow immediately the parison obtained even if it did not make adhesives intervene, to fabricate it and to fabricate by this invention technique in the container of ****, it will be made.
- 30 [0025] The device is as follows although the tube which consists of a laminated film within a mouthpiece 3 by ***** is made from drawing 2. Melting PEM made with the extruder 1 is divided into two within part style equipment, and one enters into a mouthpiece 3 through passage 71, it goes into the annular path 31 most located inside in a mouthpiece 3, and becomes the tubed film which subsequently forms an inside layer
- 35 through a path 32. On the other hand, other one divided into two enters into a mouthpiece 3 through passage 72, it goes into the annular path 33 most located outside in a mouthpiece 3, and becomes the tubed film which subsequently forms an outside layer through a path 34. Let the annular paths 31 and 33 be these cores.
- [0026] On the other hand, although it goes into the annular path 35 within a mouthpiece 3 and the annular path 35 is used as the above-mentioned annular paths 31 and 33 and this above-mentioned core, if the melting resin PO made with the extruder 2 is seen from the center, it is located in the interval with the annular paths 31 and 33. The melting resin PO serves as the tubed film which goes into a path 36 from the annular path 35, and forms a main layer.
- 40 [0027] In this way, the tubed film formed in Mie forms the tube which joins at the path 37 in a mouthpiece 3, and consists of a laminated film. This tube is extruded from a
- 45

mouthpiece 3 and serves as a parison 4. A parison 4 is given to the entrainment molding as a conventional method after that.

MEANS

5 [The means for a technical-probrem resolution] This artificer used PO as the main layer, located PEM, i.e., PET and EVOH, or MX in the both sides, and it found out that it was convenient to carry out the laminating of this by one opening Kaneuchi by *****
10 and to extrude it as a laminated film although it does not weld those resins of not each other's although the laminating parison which consists of a film of three layers is made. Moreover, although the resin comrade who constitutes the parison did not weld each other when the laminating parison made in this way was used as the container of the extensive base by the conventional entrainment fabricating method, it found out that a
15 container ceases to exfoliate in each resin layer simply for the configuration of the extensive base. Therefore, even if this laminated vessel does not make an adhesives layer intervene between each class, it will have the advantage that it can fully be used as a container of one. This invention is completed based on such knowledge.
[0013] this invention offers a container in the whole surface, on the other hand, it is boiled, is set, and offers the manufacture technique of a container The container is a
20 container made from laminating synthetic resin which consists of a cylinder which the film which becomes the both sides of the film which consists of an olefin system resin from one of PEM is located, and consists only of a laminated film to which three layers were made close, closes the end of a cylinder, considers as the base, is made to carry out opening of the other end, considers as the opening, and be characterized by having
25 swollen in the configuration which spreads toward the base from the opening at one. [0014] Moreover, the manufacture technique of a container carries out melting of the one resin in PEM within one extruder by *****. Carry out melting of the PO within another extruder, and while two resins which carried out melting are led to one opening Kaneuchi and the former is fabricated by opening Kaneuchi on a double tubed film
30 Fabricate the latter on a single tubed film in the mid-position, make these films join by opening Kaneuchi, and a tubed laminated film is formed. It is characterized by extruding from a mouthpiece, considering as a parison, closing an end on both sides of a parison to the split dies body for container molding, blowing and carrying out the blow molding of the air into a parison from the other end, and considering as the container of ****.

EXAMPLE

40 [Example] It is as follows when an example of enforcement of the container concerning this invention is explained based on a drawing. a part of container made from laminating synthetic resin which drawing 1 requires for this invention -- it is a notching side elevation Drawing 2 is the model view having shown the manufacture technique of the container made from laminating synthetic resin concerning this invention.

[0016]

45 [An explanation of a container] The container shown in drawing 1 closes the end of the cylinder which consists of synthetic resin, sets it to base a, carries out opening of the

other end, is set to opening b, and is presenting the configuration which swelled to one to the configuration which spreads toward base a from opening b. Moreover, the cylinder consists of a laminated film which is made to carry out the laminating of the film of thermoplastic synthetic resin, and was obtained. At these points, this container is

5 common.

[0017] The place of this invention by which it is characterized most is the configuration of a laminated film. That is, the laminated film is the combination of locating the films d and e which use as a main layer film c which consists of PO, and become the both sides from PEM, i.e., PET and EVOH, or MX. Since PO, PET, EVOH, or MX is a resin not to weld [not each other's], since what should originally be decomposed into a rose rose has swollen in the configuration which spreads toward base a from opening b, it does not paste up only by it contacting directly, therefore this laminated film is *****ed mutually, escapes decomposition and is united.

10 [0018] What ** of polyethylene and polypropylene can also be used as PO used by this invention. Among those, polyethylene can also use a low density and what ** of a high density polyethylene.

[0019] PET is chain-like polyester of the amount of macromolecules which the alcohol of 2 **s is made to react to an aromatic dicarboxylic acid, and was obtained. Although most terephthalic acid is used as a dicarboxylic acid, there is also a thing using isophthalic acid. Moreover, although ethylene glycol is mainly used as dihydric alcohol, there is also a thing using the trimethylene glycol, the diethylene glycol, etc. Since such polyester is marketed, it uses the resin marketed in this invention.

20 [0020] EVOH is the copolymerization resin of ethylene and vinyl alcohol. This copolymerization resin carries out copolymerization of ethylene and the vinyl acetate, makes ethylene and a vinyl acetate copolymer first, subsequently hydrolyzes the vinyl acetate in this copolymer, and is made. Although various things are in the copolymerization rate, it is desirable that a vinyl alcohol content uses 20-50 mol the thing it is [thing] % in this invention.

30 [0021] MX is the chain macromolecule object which a meta-xylylene diamine and a dibasic acid are made to condense, and was obtained, and is a kind of nylon. Many adipic acids are used as a dibasic acid. Since MX is marketed, it can use the resin marketed in this invention.

35 DESCRIPTION OF DRAWINGS

[An easy explanation of a drawing]

[Drawing 1] a part of container made from laminating synthetic resin concerning this invention -- it is a notching side elevation

40 [Drawing 2] It is a model view explaining an example of the manufacture technique of the container made from laminating synthetic resin concerning this invention.

[An explanation of a sign]

The base of a container

b The opening of a container

45 c The film which consists of an olefin system resin

d The film which consists of thermoplastic polyester resin, an ethylene vinyl alcohol

copolymerization resin, or MX nylon

e The film which consists of thermoplastic polyester resin, an ethylene vinyl alcohol copolymerization resin, or MX nylon

1 Extruder

5 2 Extruder

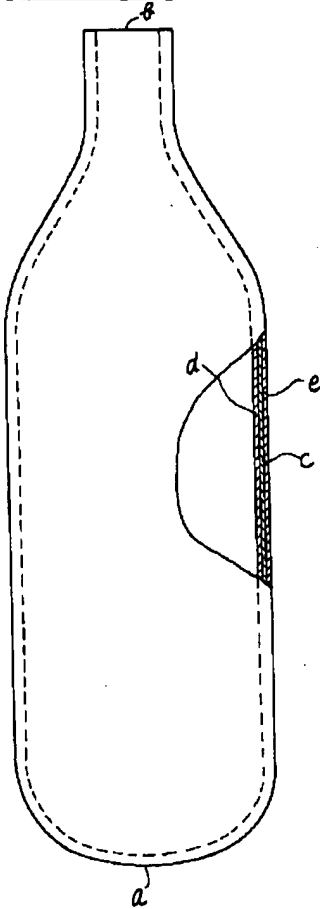
3 Mouthpiece

4 Parison

5 Dies Body

10 DRAWINGS

[Drawing 1]



15 [Drawing 2]

